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tration'; 15. 'To Define what Constitutes an Epidemic'; 16. 'On National Leper Home'; 17. 'Dangers to the Public Health from Illuminating and Fuel Gas'; 18. 'Revision of Bertillon Classification of Causes of Death'; 19. 'Transportation of Diseased Tissue by Mail'; 20. 'The Teaching of Hygiene and Granting of Degrees of Doctor of Public Health.'

It has been arranged to devote one day, Wednesday, October 24th, to the discussion of topics relating to sewerage and water supply. Special attention will be given to the engineering phase of this subject. The following subjects will be presented for discussion:

1. 'What Constitutes a Satisfactory Water Supply?'
2. 'The Value of Vital Statistics as an Index to the Pollution of Water Supplies';
3. 'Comparative Statistics of the Water Supplies of the Leading American Cities as shown by Typhoid Fever Statistics';
4. 'Conservation and Control of Water Supplies by State, Provincial and Municipal Authorities';
5. 'The Relation of the Analytical Laboratory to Problems in the Pollution of Public Water Supplies';
6. 'The Legal Aspect of Water Pollution';
7. 'The Present Status of Methods of Purification of Sewage entering Public Water Supplies';
8. 'Sewage Purification Plants now in Operation in America, with reference to Public Water Supplies';
9. 'Methods of Purification of Water Supplies, with a Summary of Plants now in Operation in America';
10. 'Recent Progress in Europe concerning the Purification of Water Supplies.'

SECTION ON BACTERIOLOGY AND CHEMISTRY.

1. 'On Standard Methods of Water Analysis';
2. 'Laboratory Work on Tuberculosis';
3. 'On Obtaining Experimental and Clinical Data on the Exact Mode of Infection in Rare and Unusual Cases';
4. 'Study of the Causation of Cancer';
5. 'Bacteriology of Milk in its Sanitary Relations';
6. 'Variations of the Colon Bacillus in Relation to Public Health';
7. 'Variations of the Diphtheria Bacillus';
8. 'Bacteriology of Yellow Fever';
9. 'Inter-Laboratory System of Card Cataloguing for Sanitary Bibliography';
10. 'Use of Chemical Preservatives in Foods';
11. 'Exhibition of Laboratory Apparatus and Appliances for Teaching Hygiene';
12. 'Census of Laboratory Men engaged in Sanitary Work.'

SCIENTIFIC NOTES AND NEWS.

PROFESSOR GEORGE F. BARKER, LL.D., for twenty-eight years professor of physics in the University of Pennsylvania, has resigned his chair because of poor health. The corporation

of the University has made him professor emeritus of physics and voted him a pension.

DR. N. F. DRAKE, of the Imperial Tien-Tsin University, whose explorations of the anthracite coal fields of China we recently noted, remained in Tien-Tsin during the late fighting in that city. German troops were finally stationed in the university buildings and completely destroyed the apparatus of the chemical and assay laboratories under Professor Drake's charge.

GENERAL A. W. GREELY, Chief of the Army Signal Service, has returned from Alaska. He was on board the steamer *Orizaba* which went aground at St. Michael, while laying a cable between that place and Nome.

PROFESSOR H. A. ROWLAND, of the Johns Hopkins University, was given at the Paris Exposition, in addition to the grand prize for his spectroscopic apparatus, which we have already noted, a second grand prize for his multiplex telegraph printing machine.

DR. E. W. SCRIPTURE, of Yale University, was awarded the gold medal of the Paris Exposition for methods of testing color-blindness.

PRESIDENT DANIEL C. GILMAN, of the Johns Hopkins University, who was granted a leave of absence last spring by the trustees, in commemoration of the twenty-fifth anniversary of his election, and has since been abroad, has returned to Baltimore.

THE College of Physicians of Philadelphia has awarded its Alvarenga prize for 1900 to Dr. David De Beck of Cincinnati for his essay entitled 'Malarial Diseases of the Eye.' Essays in competition for the prize next year must be received not later than May 1, 1901. The value of the prize is about \$180.

THE daily papers report that the Mexican Government is considering the award of \$100,000 to Dr. Angel Bellinzaghi, who was born in Italy in 1865, for his serum against yellow fever which is said to have proved successful in eighty-five per cent. of the cases in Mexican hospitals.

MR. JOHN E. HUDSON, president of the American Bell Telephone Company, died on October 1st. Under his management the com-

pany grew in ten years from a system of 739 exchanges and 411,861 instruments to one of 1,239 exchanges and 1,847,000 instruments with over a million miles of wire in service. Mr. Hudson was a man of wide scientific and literary culture, having been tutor in Greek at Harvard University.

THE death is announced of Miss Margaret Stokes a distinguished Irish archeologist and the author of numerous antiquarian works.

PROFESSOR GEORGE FREDERICK WRIGHT and his son, Fred. B. Wright, were in the midst of the troubles in China, and scientific men will be glad to learn that they have so far escaped unharmed. On May 5th they started on a three weeks' trip from Peking to Kalgan. That brought them back to Peking just as the Boxer movement culminated; but they left the city, in pursuance of regular plans one day before the gates were closed, and were in Tien-Tsin from the 26th to the 30th. On June 5th they had reached Port Arthur, and on the 6th took one of the construction trains of the Chinese Eastern Railroad. By train and Chinese cart they made their way to Harbin, Manchuria; and then down the Sungaree and Amoor rivers to Vladivostok. On July 10th they left Vladivostok, expecting to make good time to Chita if the boat did not stick on some sand bar in the river. At Poyakova, East Siberia, however, they had to exchange boat for tarantass and horses. After an exciting ride through deserted and burning villages they reached Blagovyeschensk at the middle of July to find it in a state of siege. On the 25th of July they were able to take passage on the return trip of a steamer that had come down to within twenty miles of Blagovyeschensk. With many delays on account of shallow water, they made their way up the Amoor and Shilka rivers to Stretinsk. At that point the Siberian railroad was taken to Chita and on to Lake Baikal. There a small steamer transferred them to the western side of the lake, where they again took train to Irkoutsk. The next stop was at Krasnoyarsk, on the Yenisei River. An interesting trip was taken up the river to Minusinsk, where there is a large museum of historical and arche-

ological interest. Returning to Krasnoyarsk they continued their railroad journey to Omsk, at which point they were heard from September 6th. Their plans for the future were to go by boat up the Irtysh river to Semipalatinsk, where they will have a chance to visit the foot of the Altai Mountains. Then they will go by tarantass and horses to Tashkend, where they will strike the Trans-Caspian railroad, which runs through Samarkand and Merv to the Caspian Sea. Baku and Trebizond will be the next stopping places. After a visit to Moscow and St. Petersburg, they expect to return to Constantinople and continue their trip through Palestine and Egypt, reaching home by way of Italy, in March.

THE steamship *Windward* has not returned as had been expected, and it is suggested that Lieutenant Peary may have used the boat to push farther north as the season is supposed to have been an open one.

LIEUTENANT AMDRUP'S Greenland expedition has returned on board the *Antarctic*. The members of the expedition explored and mapped a hitherto unknown stretch of land extending from Cape Town, latitude 69 degrees 28 minutes north, to Agassiz Land, 67 degrees 22 minutes north.

MESSRS. C. H. TYLER TOWNSEND and Charles Melvin Barber made between the last of May and the first of November, 1899, extensive collections of plants on the Sierra Madres, in the State of Chihuahua, just east of the little Mormon town of Colonia Garciá, at altitudes varying from 7,000 to about 8,500 feet above the sea level. About 40 numbers were collected in the 'hot country' some distance down the Pacific slope of the range, and a few on the plains east of the mountains. An attempt was made to collect thirty sets, but the material will not run evenly through that many. 452 numbers in all were taken. The material is well dried and altogether very fair, and is supplied with printed labels. Something over 250 numbers have been identified at the present time, of which Professor E. L. Greene has named the *Compositæ*, *Mimuli* and *Loti*; Dr. J. N. Rose, the *Umbelliferae* and *Commelinaceæ*; Dr. B. L. Robinson, the *Cruciferae* and *Caryophyllaceæ*; Mr. E. P. Bicknell,

the *Iridaceæ*; Dr. P. A. Rydberg, the *Potentillæ* and other *Rosaceæ* and some *Leguminosæ*; Dr. C. F. Millsbaugh, the *Euphorbiaceæ*; Mr. R. A. Rolfe, the *Orchidaceæ*. Of this number Professor Greene has named 8 new species, Dr. Robinson 4, Dr. Rose 3, Mr. Bicknell 2, and Dr. Rydberg has indicated two new species of *Potentilla*, which he has not had time as yet to describe.

THE second season of the Beaufort Laboratory of the U. S. Fish Commission came to an end on September 15th. The occupants of tables were from Johns Hopkins University, Columbia University, University of North Carolina and Trinity College (N. C.). The economic work, carried on by special assistants in the service of the Commission, embraced a study of the neighboring natural and artificial oyster beds, breeding times and food of certain food-fishes, life histories of fish (blennies), life history of a lepadide barnacle (*Dichelaspis*) which has been found to be a common parasite in the gill chambers of the edible crabs, *Callinectes* and *Menippe*. The more purely scientific investigations covered a wide field, embracing such diverse subjects as the systematic zoology and ecology of actinians, echinoderms, and sponges; embryology of ophiurans; larval development of actinians; regeneration phenomena in ophiurans, and in *Renilla*; embryology of geophyrean worms (*Thalassema*); cell lineage of *Axiotea*; experimental work on the cleavage of the oyster egg; cytological phenomena in the 'chemically fertilized' eggs of *Toxopneustes*.

THE experiment made by English scientific men on mosquitoes and malaria to which we have called attention appears to have been successful. Drs. Sambon and Low and their associates, who have been living in a mosquito-proof hut in the Roman campagna drinking the water, exposed to the night air and taking no quinine, have so far been entirely free from malaria. On the other hand Dr. Manson's son, P. Thurburn Manson, who was bitten every second day by infected mosquitoes, fed in Rome on those suffering from malarial fever, suffered an attack of fever and tertian parasites were found in his blood.

THE Pacific Commerical Museum, modeled after the similar institution at Philadelphia, has completed its organization by electing Irving M. Scott, president, Eugene Goodwin, secretary, and Isaac Upham, treasurer. It is amply provided with funds and will soon begin the collection of the products of the Pacific Coast, which are to form a permanent exposition in San Francisco.

THE United States Civil Service Commission invites attention to the announcement which was made on September 12, 1900, of an examination to be held on October 23-24, 1900, for the position of assistant in the Nautical Almanac Office, and desires to state that as the result of this examination it is expected that certification will also be made to the position of computer in the United States Naval Observatory at a salary of \$1,200 per annum, and for similar vacancies as they shall occur; certification being made, however, of those eligibles who have furnished evidence to the Commission that they have had experience in the use of astronomical instruments.

A COURSE of lectures on science and travel is now being given in the Field Columbian Museum, Chicago, at three o'clock on Saturday afternoon as follows:

Oct. 6—'How Plants Live,' by Professor Charles R. Barnes, University of Chicago.

Oct. 13—'Do Invertebrates have Consciousness?' by Dr. H. V. Neal, Knox College, Galesburg, Ill.

Oct. 20—'Wyandotte and Marengo Caves,' by Professor O. C. Farrington, Curator, Department of Geology, Field Columbian Museum.

Oct. 27—'The Life and Death of a Tree,' by Dr. Thomas H. MacBride, State University of Iowa.

Nov. 3—'Porto Rico and its People,' by Dr. Barton Warren Evermann, Ichthyologist of the United States Fish Commission.

Nov. 10—'Mining in the Ozarks,' by Professor Henry W. Nichols, Assistant Curator, Department of Geology, Field Columbian Museum.

Nov. 17—'Variation of Organisms,' by Dr. C. B. Davenport, University of Chicago.

Nov. 24—'Picturesque Mexico,' by Mr. P. V. Collins, Minneapolis, Minn.

WE learn from medical exchanges that Dr. Frances Dickinson, president of the Illinois Educational League, is making an effort to secure

from the State Legislature an appropriation of \$50,000 to be used in establishing in Chicago and in other cities State laboratories for the teaching of the sciences of physics, chemistry, bacteriology, biology and microscopy, and for extension courses throughout the State in sanitary and agricultural sciences. It is intended that the laboratories shall be open in the evenings to enable bread-winners to procure a higher education than they are able to get now.

It is reported that, upon the recommendation of the Department of War the Department of Agriculture is preparing an order setting apart as forest reserves the island of Rombolin, north of the island of Panay; also the island of Pautitai, which is one of the extreme group of the Jolo Islands. Officers of the army who have been looking over the islands have found that these are perhaps the richest islands in the world for rubber trees, and it is the intention of the Washington authorities to have the trees preserved and cared for, especially as some fears lately have been expressed that the rubber supply may become exhausted.

THE International Railway Congress, held this year at Paris, will meet in 1901, at Washington, D.C. At the Paris meeting M. Bandin, French Minister of Public Works, paid a high tribute to the advanced state of railway construction and management in the United States, saying that all the later-improvements adopted in Europe came from America. European countries, he said, ought to realize that in railway improvements they are behind the United States and should take constant lessons from its methods.

It is somewhat remarkable that while there are about 18,000 miles of electric trolley lines in the United States there are only about 300 miles in Great Britain and Ireland. It might be supposed that the more dense population of the British Isles would especially support such lines. Recent financial conditions indicate that if an extension of the trolley lines in Great Britain is not soon undertaken by citizens of that country the field will be occupied by American engineers and capitalists.

A NEW transatlantic liner of unequalled di-

mensions is to be built by Kewland & Wolff, of Belfast, Ireland, for the Hamburg-American line. According to the press dispatches the new ship will be 750 feet long and 76 feet beam and will have accommodations for 2,000 passengers and 12,000 tons of cargo. The speed will be 18 knots, and the most improved construction will be used throughout. The main dimensions of the *Oceanic*, at present the largest vessel, are: length 704 feet and beam 68 feet 4½ inches. The new Hamburg-American ship is to be completed in 1903.

THE International Congress of Applied Chemistry was held in Paris during the last week of July, under the presidency of M. Moissan. There were as we have already stated ten sections: analytical chemistry, chemical industry of inorganic products, metallurgy, mines and explosives, chemical industry of organic products, the sugar industry, chemical industry of fermentation, agricultural chemistry, hygiene, food analysis, medical and pharmaceutical chemistry, photography and electrochemistry. *Nature* reports that more than two hundred papers were read and discussed, and numerous resolutions were passed, of which the following were the most important. In view of the great inconvenience caused commercially by uncertainty in the atomic weights used by analytical chemists, the congress, hoping that the adoption of the atomic weight of oxygen as a base ($O=16$) would lead to a greater certainty and to a simplification in the calculation of atomic weights, agreed to work in unison with the International Commission on atomic weights. It further suggested the necessity for an International Commission for fixing methods and coefficients of analysis in commercial work. Committees were also appointed to deal with questions of indicators in volumetric work, analysis of manures, potash estimation, and the use of sulphurous acid in wine. In the second section the chief questions dealt with were the determination of high temperatures, construction of glass and porcelain furnaces, the manufacture of sulphuric acid, and of barium and hydrogen peroxides. In the section of metallurgy, mines and explosives, papers were read dealing with the sampling of minerals, the constitution of iron and steel, the

use of the microscope in the study of metals, utilization of waste heat, and the estimation of sulphur, manganese and phosphorus in metals. In the section dealing with the industry of organic substances the most important discussion was on the use of alcohol for other than drinking purposes, and a series of resolutions was passed stating that in the opinion of the congress no duty should be charged upon alcohol used in the preparation of pharmaceutical and chemical products. In the case of alcohol intended for use as fuel, the substances added should be of a character appropriate to its use, not too costly, and not containing any non-volatile substance. Any attempt to recover pure alcohol from methylated spirit should be liable to severe penalties, and all makers of stills should be compelled to give particulars to the excise authorities of stills sold or repaired. In the other sections discussions were held on the relation of the sugar industry to the State, the methods of analysis of wines and spirits, the carbide industry, manufacture of percarbonates, and numerous other papers of interest.

UNIVERSITY AND EDUCATIONAL NEWS.

THE new observatory of Wellesley College, the gift of a member of the Board of Trustees, was formally opened October 8th. Addresses were announced by Professors E. C. Pickering and David P. Todd.

UNION College has received \$10,000 from members of the Mather family of Jefferson county for the establishment of a department of agriculture.

FRANCIS T. WHITE, of New York City, has given \$25,000 to Earlham College, a Friends' institution in Indiana, to be added to the like amount given by him a year ago, the whole to be known as the Francis T. White endowment fund.

THE Faculty of Jefferson Medical College, Philadelphia, have recommended the establishment of a J. M. Da Costa Memorial Laboratory of Clinical Medicine in memory of the late Dr. Da Costa who was a graduate of the institution and left to it his collections.

THE new School of Commerce, Accounts and Finance of the New York University was formally opened on October 2d, by Chancellor McCracken. Professor C. W. Haskins is the dean of the new school which started with an enrollment of about fifty students.

THE Cornell Medical School now occupies its new building on First Avenue between Twenty-seventh and Twenty-eighth streets, New York City.

THE University of Illinois has in course of construction a new agricultural building which will probably be the most extensive building in the United States devoted to agricultural education. \$150,000 have been devoted to its construction.

PRESIDENT CHARLES KENDALL ADAMS, of the University of Wisconsin, has been given leave of absence owing to ill-health and will spend a year or more abroad. Dr. E. A. Birge, professor of zoology, and dean of the College of Letters and Science has been made acting president.

DR. GEORGE H. ASHLEY, formerly assistant State Geologist of Indiana, has accepted the professorship of natural history at the College of Charleston in South Carolina. This is the position once held by Alexander Agassiz.

DR. T. BIRD MOYER, Ph.D. (Univ. of Pa.), instructor in chemistry in the University of Pennsylvania, has been recently elected to the professorship of chemistry in the Pennsylvania College of Dental Surgery.

ARTHUR L. CLARK has been appointed professor of physics in Bates College, succeeding Professor M. C. Leonard who is now teaching in Japan.

THE following assistants have been appointed in Columbia University: Alfred Tringle, Ph.D., analytical chemistry; Frank E. Pendleton, Ph.D., mechanical engineering; Llewellyn Le Count, civil engineering; Chas. H. Hitchcock, mining; Wm. G. Clark, metallurgy.

AT Johns Hopkins University, D. N. Shoemaker has been appointed assistant in zoology and Dr. Gordon Wilson fellow in pathology.